



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/716,782

11/18/2003

Scott D. Cohen

07844-625001 / P578

6167

21876 7590 05/23/2008

FISH & RICHARDSON P.C.

P.O. Box 1022

MINNEAPOLIS, MN 55440-1022

EXAMINER

ALLISON, ANDRAE S

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

05/23/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/716,782	Applicant(s) COHEN ET AL.	
	Examiner ANDRAE S. ALLISON	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-17 and 19-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3-17 and 19-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Remarks

1. The Office Action has been made issued in response to amendment filed February 29, 2008. Claims 1, 3-17 and 19-54 are pending. Applicant's arguments have been carefully and respectfully considered in light of the instant amendment, and are persuasive.

Claim Rejections – 35 USC section § 102

In response to Applicant argument on page 7, that Takahashi fail to disclose "identifying a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixel, wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels", the Examiner agrees. However, upon review of prior art a new ground of rejection is being presented.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 40-54 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 40 defines a system embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" – Guidelines Annex IV). That is, the scope of the presently claimed a system can range from paper on which the program is written, to a program simply contemplated and memorized by a person. The examiner suggests amending the claim to embody the program on "computer-readable medium" or equivalent in order to make the claim statutory. Any amendment to the claim should be commensurate with its corresponding disclosure.

Claims 41- 54 are being rejected as incorporating the deficiencies of the claim upon which each respective claim depends.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Westman et al (NPL Document titled: "COLOR SEGMENTATION BY HIERARCHICAL CONNECTED COMPONENTS ANALYSIS WITH IMAGE ENHANCEMENT BY SYMMETRIC NEIGHBORHOOD FILTERS").

As to independent claim 1, Takahashi discloses a computer-implemented method for identifying one or more objects within an image (image recognition method; column 1, lines 11-12) the method comprising: receiving an image that includes two or more non-overlapping embedded images (e.g. 40 and 41, see Fig 4); identifying a plurality of edge pixels based on a respective gradient value (detect the color change between two objects, column 12, lines 61-63) associated with each of the plurality of edge pixels (edge image, column 12, line 54); selecting an edge pixel from the plurality

Art Unit: 2624

of edge pixels (1001, see Fig 11); identifying a substantially connected component that includes non-edges pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels, wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels and an edge threshold value is used to locate an actual edge); and identifying a bounding area within the image, the bounding area surrounding the plurality of substantially connected edge pixels (e.g. 51, see Fig 4). However, Takahashi does not expressly disclose identifying a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels. Westman discloses a method for image segmentation (see abstract), which includes the step of identifying a substantially connected component that includes non-edge pixels and a plurality of substantially connected edge pixels being substantially connected to the selected edge pixels wherein the number of non-edge pixels in the substantially connected component is based on a level of tolerance for non-edge pixels (see page 796, section 2, [p][005], lines 1-8). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modified the image recognition method of Takahashi with the image segmentation method of Westman to extract object from an image by scanning the image pixel by pixel from left to right and bottom to top in order to identify connected pixel regions i.e. regions of adjacent pixels which share

Art Unit: 2624

the same set of intensity values, and after completing the scan, the equivalent label pairs are sorted into equivalence classes and a unique label is assigned to each class.

As to claim 3, Takahashi teaches the wherein identifying a plurality of edge pixels includes computing the respective gradient value for each of a plurality of pixels in the image (detect the color change between two objects, column 12, lines 61-63).

As to claim 4 Takahashi teaches the method wherein computing the gradient value for each of the plurality of pixels includes, for each pixel comparing respective pixel colors of a neighborhood of pixels surrounding the given pixel (column 30, lines 15-25).

As to claim 5, Takahashi teaches the method wherein computing the respective gradient value for each of the plurality of pixels includes using an image smoothing filter-to-filter noise from the image (column 2, lines 52-56).

As to claim 6, Takahashi teaches the method further comprising passing each component to a processor that extracts the location of the object from the component (column 4, lines 58-59).

As to claim 7, Takahashi teaches the method, further comprising refining the extracted location (column 4, lines 20-54-58).

As to claim 10, Takahashi teaches the method, further comprising merging the bounding are within the image with another bounding area within the image into a single bounding area (column 29, line 63-67).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Huang et al (US Patent No.: 5,671,290).

As to claim 8, Takahashi does not disclose expressly the method further comprising using the extracted location to crop the embedded image from the image. Huang discloses a method for identifying people (column 1, lines 23-13) including using the extracted location to crop the embedded image from the image (column 2, lines 57-58). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have added the method for identifying people of Huang to the image recognition method of Takahashi to eliminate unneeded portions not specifically depicted part of the extracted object (column 2, lines 58-60).

As to claim 11, Huang teaches the method further comprising: extracting a location of each of the two or more non-overlapping embedded images from the image; and using the location to seed a crop operation (column 2, lines 57-58).

As to claim 12, Huang teaches the method of wherein using the extracted object location to seed a crop operation includes: for each of the two or more non-overlapping embedded images in the image, using the location to define a cropping area; and cropping all the defined cropping areas in a single cropping operation (column 4, lines 20-24).

As to claim 13, Huang teaches the method wherein: the location specifies an alignment of one of the two or more non-overlapping embedded images with respect to the image; and using the location to define a cropping area includes using the alignment of one of the two or more non-overlapping embedded images to define an alignment of the cropping area (column 9, lines 45 - 60).

7. Claims 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Huang et al (US Patent No.: 5,671,290) further in view of Noda et al (Pub No.: US 2002/0030634).

As to claim 14, neither Takahashi or Huang disclose expressly the method further comprising: prior to cropping all the defined cropping areas, adjusting one or

more of the defined cropping areas in response to user input. Noda discloses a method for image synthesis ([p][002], lines 1-2) wherein prior to cropping all the defined cropping areas, adjusting one or more of the defined cropping areas in response to user input ([p][0106], lines 1-3). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combined the image synthesis method of Noda with the image recognition method of Takahashi as modified by Huang so that a user could adjust the location of the boundaries or contours of the identified object(s) so that the object(s) can be cropped properly.

As to claim 16, Curtright does not expressly disclose the method wherein adjusting one or more of the defined cropping areas includes splitting a single cropping area into two or more cropping areas. However, it would have been obvious to split a single cropping area into two or more cropping areas so that if two cropped area are identified as one, the area would be split into two or more before performing the crop operation (OFFICIAL NOTICE).

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Huang et al (US Patent No.: 5,671,290) further in view of Curtright et al (US Patent No.: 5,844,570).

As to claim 15, neither Takahashi or Huang disclose expressly the method further comprising: prior to cropping all the defined cropping areas merging two of the defined cropping areas into a single defined cropping area. Curtright discloses a method

for generating digital map that includes merging two cropping areas into a single cropping area (column 6, lines 15-20). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to added the method for generating digital map of Curtright to the image recognition method of Takahashi as modified by Huang so that if one cropped area is identify as two area objects, the cropped areas are merged into a single area before performing the crop operation.

Note that Curtright does not disclose performing the operation prior to cropping all the defined areas, however, it would have been obvious to crop all the defined areas so that if one object is erroneously identified as two, the areas would be merged or combined before carrying out the cropping operation (OFFICIAL NOTICE).

9. Claims 9, 17, 19-33 and 40-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Prakash et al (US Patent No.: 6,778,698).

As to claim 9, Takahashi does not expressively disclose the method further comprising splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images. Prakash discloses an image segmentation method that includes splitting the bounding area of the image into a first of the two or more non-overlapping embedded images and a second of the two or more non-overlapping embedded images (column 3, lines 37-38). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the image segmentation method of

Prakash with the image recognition method of Takahashi to split edge pixels of multiple objects erroneously identified as a single object into multiple objects.

As to independent claim 17, note the discussion above, this claim differs from claim 1 only in that claim 17 is computer program product whereas, claim 1 is method and the limitations computer-readable medium, instructions and programmable processor are additively recited in the preamble. Prakash teaches a computer program product stored on computer-readable medium (116, see Fig 2) comprising instructions (program instructions (see Fig 2) and executed by programmable processor (114, see Fig 2).

As to independent claim 33, note the discussion above of claims 1 and 17, all the limitations are discussed except: receiving a scanned image that includes multiple objects; erasing from the edge pixel map all the edge pixels that belong to the connected component or that are enclosed by the extracted object; and (6) repeating steps (2) through (5) until no more edge pixels are found. Takahashi teaches erasing from the edge pixel map all the edge pixels that belong to the connected component or that are enclosed by the extracted object (column 29, lines 63-65); and (6) repeating steps (2) through (5) until no more edge pixels are found. Note the discussion above, Westman teaches a scanned image that includes multiple objects (see page 796-797, section 2, [p][006]).

As to independent claim 40, this claim differs from claim 1 only in that claim 40 is system whereas, claim 1 is method and the limitations a display device and machine-readable storage device including a program product are additively recited. The machine-readable storage device including a program product is discussed above. Regarding the display device, Prakash clearly teaches a display (see column 1, line 51).

Claims 19-32 differ from claims 3-16 only in that claims 3-16 are method claims whereas, claims 19-32 are product claims. Thus, claims 19-32 are analyzed as previously discussed with respect to claims 3-16 above.

Claims 41-54 differ from claims 3-16 only in that claims 3-16 are method claims whereas, claims 41-54 are system claims. Thus, claims 41-54 are analyzed as previously discussed with respect to claims 3-16 above.

10. Claims 34, 36 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Tessadro (US Patent No.: 7,003,161).

As to claim 34, Takahashi does not expressly disclose the method further comprising setting the tolerance level based on a user input. Tessadro discloses a boundary detection method that includes the step of setting the tolerance level based on a user input (see column 4, lines 1-12). At the time of the invention, it would have been

obvious to a person of ordinary skill in the art to combine the teaching of Takahashi and Tessadro to locate an edge position bounded or defined by two significant colored region or color-textured regions with the aid of a GUI (column 3, lines 38-46).

Claim 36 differ from claim 34 only in that claim 34 is a method claim whereas, claim 38 is a product claim. Thus, claim 36 is analyzed as previously discussed with respect to claim 34 above.

Claim 38 differ from claim 34 only in that claim 34 is a method claim whereas, claim 38 is a product claim. Thus, claim 38 is analyzed as previously discussed with respect to claim 34 above.

11. Claims 35, 37 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (US Patent No.: 6,665,439) in view of Acharaya et al (US Patent No.: 6,094,508).

As to claim 35, Takahashi does not expressly disclose the method further comprising automatically determining the tolerance level as a function of a spacing between the objects (see column 2, lines 53-59). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of Takahashi and Acharya to localize a region of an image and then determine automatically without user intervention, the threshold to be applied for edge detection within the localization region (see column 2, lines 53-59).

Claim 37 differ from claim 35 only in that claim 35 is a method claim whereas, claim 37 is a product claim. Thus, claim 37 is analyzed as previously discussed with respect to claim 35 above.

Claim 39 differ from claim 35 only in that claim 35 is a method claim whereas, claim 39 is a product claim. Thus, claim 39 is analyzed as previously discussed with respect to claim 35 above.

Conclusion

12. The prior art made part of the record and not relied upon is considered pertinent to applicant's disclosure.

Li (US Patent No. 6,128,414) is cited to teach a method for locating geometric shapes or edges.

Agnihortri et al (US Patent No. 6,614,930) is cited to teach a video stream classifiable symbol isolation method and system.

Inquires

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrae S. Allison whose telephone number is (571) 270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

Art Unit: 2624

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Meta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrae Allison

May 19, 2008

/Bhavesh M Mehta/

Supervisory Patent Examiner, Art Unit 2624